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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/014,392
Filing Date: October 22, 2001
Appellant(s): VERBOOM, JOHANNES J.

Craig J. Lervick
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 08/17/2005 appealing from the Office action mailed 06/01/2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is deficient. 37 CFR 41.37(c)(1)(v) requires the summary of claimed subject matter to include: (1) a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number, and to the drawing, if any, by reference characters and (2) for each independent claim involved in the appeal and for each dependent claim argued separately, every means plus function and step plus function as permitted by 35 U.S.C. 112, sixth paragraph, must be identified and the structure, material, or acts described in the specification as corresponding to each claimed function must be set forth with reference to the specification by page and line number, and to the drawing, if any, by reference characters. The brief is deficient because the Appellant contradicts the specification by contending that "These reference bytes or reference fields are in addition to existing synchronization and timing bytes that are typically included at the beginning of a data sector". First of all, nowhere in the specification does the Appellant redefine reference bytes to be anything more than reference bytes. For example, in the Appellant's Abstract, the Appellant recites, "use of reference bytes supplements many well known error correction methodologies". The Examiner asserts that one of ordinary skill in the art at the time the invention was made would have known that Error Correction Code (ECC) blocks include synchronization bytes

to align ECC blocks so that ECC blocks can be correctly decoded (see col. 5, lines 47-28 in Kuroda); hence synchronization bytes are reference bytes according to the Appellant's own usage of the phrase "reference bytes". In addition, the last two lines on page 7 of the Appellant's own disclosure explicitly teach that "reference bytes" can be synchronization data. Hence what the Appellant really teaches in the Appellant's disclosure is that --These reference bytes or reference fields can be synchronization and timing bytes that are typically included at the beginning of a data sector or can be additional data to existing synchronization and timing bytes that are typically included at the beginning of a data sector--. However, even so, the Appellant never explicitly defines or redefines reference byte or reference field to be anything other that what the dictionary definition of the words warrants.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,875,163	Kuroda et al.	2-1999
5,574,706	Verboom et al.	6-1994

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 10, 13, 14, 16, 17, 19, 20, 22, 23, 26 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuroda; Kazuo et al. (US 5875163 A, hereafter referred to as Kuroda).

35 U.S.C. 102(b) rejection of claims 1 and 3.

Kuroda teaches interleaving the data with a plurality of reference fields (col. 5, lines 47-58 in Kuroda teaches that pre-information is recorded every sync frame, the title of Figure 2 and Figure 2 of Kuroda teaches that pre-information is periodically interleaved onto the disk every 1488T units so that the pre-information is interleaved with frame data referred to as recording information in Figure 2, where T is a unit of length; col. 4, lines 65-67 in Kuroda teaches that address information indicative of a write position of recording information on the optical disk or the like are included in the pre-information; col. 5, lines 66-67 and col. 6, line 1 in Kuroda teaches the pre-information to be recorded is classified into a sync pre-signal corresponding to the sync signal in the pre-information and data pre-information; hence pre-information includes various reference data), each reference field including a defined data pattern (Figure 3 in Kuroda teaches that each pre-information reference field includes patterned data, the Examiner asserts that binary information stored on a disk is pattern data; hence the pre-information reference field taught in Kuroda is patterned data); storing the interleaved data within the data storage areas such that the reference fields are at predetermined locations (Figure 2 in Kuroda teaches that pre-information is 14T units wide and is recorded periodically every 1488T units, where T is a unit of length); upon demand, retrieving the

interleaved data; analyzing the retrieved interleaved data by testing the retrieved reference field to determine if the retrieved reference field meets a predetermined shape condition and a predetermined amplitude condition (Phase Comparing Circuits 14 & 15 and Amplitude Phase Equalizing Circuits 16 and 17 in Figure 4 of Kuroda are a means for determining if the retrieved periodic pre-information reference field meets a predetermined shape condition and a predetermined amplitude condition; Note: phase and amplitude determine the shape of a digital pulse); and determining whether readout errors have been encountered based upon the results of the interleaved data analysis (Figure 4 in Kuroda teaches a Pre-Pit Signal Reproducing Circuit 11 and a Sync Pre-Signal Detector 12 for reproducing and analyzing the periodic pre-information reference field of Figure 2 in order to update operating parameters SPD, SPD1 and SPD2 for controlling rotational parameter SC; SC in Figure 4 is a rotational control parameter indicative of possible errors that exist in the periodic pre-information reference field data as it deviates from a reference signal generated by Reference Signal Generator 13 in Figure 4, hence the device taught in Figure 4 of Kuroda is used to analyze errors in retrieved the periodic pre-information reference field data to update operating parameters as a result of the analysis).

35 U.S.C. 102(b) rejection of claim 10.

The term "can be" is indefinite. Note: data can always be arranged in a virtual matrix to allow for further error correction operations, and wherein the reference fields are arranged as a plurality of columns within the virtual matrix.

35 U.S.C. 102(b) rejection of claims 13 and 22.

Kuroda teaches storing data on a storage media such that periodic reference fields are interleaved within the data and placed at predetermined locations in a sector (Figure 2 in Kuroda teaches pre-information data stored periodically interleaved within sector data; hence the pre-information data taught in the Kuroda patent is a periodic reference field interleaved within sector data and placed at predetermined locations in a sector), each reference field including a defined pattern (col. 4, lines 65-67 in Kuroda teaches that the periodic pre-information reference field of Figure 2 comprises address information indicative of a write position; Note: address information indicative of a write position is a defined pattern, hence Kuroda teaches that each periodic pre-information reference field including a defined address information pattern); and using the periodic reference bytes to update a plurality of operating parameters of the read channel (Figure 4 in Kuroda teaches a Pre-Pit Signal Reproducing Circuit 11 and a Sync Pre-Signal Detector 12 for reproducing and analyzing the periodic pre-information reference field of Figure 2 in order to update operating parameters SPD, SPD1 and SPD2 for controlling rotational parameter SC) and to provide a reference field status byte indicative of possible errors that exist in the data and to analyze errors (SC in Figure 4 is a rotational control parameter indicative of possible errors that exist in the periodic pre-information reference field data as it deviates from a reference signal generated by Reference Signal Generator 13 in Figure 4, hence the device taught in Figure 4 of

Kuroda is used to analyze errors in retrieved the periodic pre-information reference field data to update operating parameters as a result of the analysis).

35 U.S.C. 102(b) rejection of claim 14.

Phase Comparing Circuits 14 & 15 and Amplitude Phase Equalizing Circuits 16 and 17 in Figure 4 of Kuroda are a means for determining if the retrieved periodic pre-information reference field meets a predetermined shape condition and a predetermined amplitude condition; Note: phase and amplitude determine the shape of a digital pulse.

35 U.S.C. 102(b) rejection of claims 16 and 17.

Figure 2 in Kuroda teaches an initialization pre-sync signal. The functional limitation "adjusting the readout system to maximize the resolution of the readout window so that the reading of the initialization data pattern will fill substantially all of the readout window" in Claim 16 imposes no structural limitation. The teachings in Kuroda and Verboom inherently are capable of optimizing read signal gain by adjusting the readout system to maximize the resolution of the readout window so that the reading of the defined data in the reference field will fill substantially all of the readout window, since the readout window is a function of synchronization, which is taught in the Kuroda and Verboom patents.

35 U.S.C. 102(b) rejection of claims 19 and 23.

Kuroda teaches the operating parameter updates include adjustments to a readout system in the data storage system so that a read signal gain is optimized (col. 7, lines 63-67 in Kuroda).

35 U.S.C. 102(b) rejection of claim 20.

Sync Pre-Signal Detector 12, Phase Comparing Circuits 14 & 15 and Amplitude Phase Equalizing Circuits 16 and 17 in Figure 4 of Kuroda are a means for wherein the operating parameter updates include adjustments to a synchronization system within the data storage system so that optimum phase synchronization can be achieved between a readout signal and a storage media synchronization signal (Note: Driver Circuit 19 is a means for synchronizing Spindle Motor 20 by controlling its rotation).

35 U.S.C. 102(b) rejection of claim 26.

Phase Comparing Circuits 14 & 15 and Amplitude Phase Equalizing Circuits 16 and 17 in Figure 4 of Kuroda are a means for wherein the operating parameter updates include adjustments to a synchronization system within the data storage system based on comparing the amplitude and shape of a readout from the periodic pre-information reference field with an expected reference readout signal from Reference Signal Generator 13 in Figure 4 so that optimum phase synchronization can be achieved between a readout signal and a storage media synchronization signal (Note: Driver Circuit 19 is a means for synchronizing Spindle Motor 20 by controlling its rotation).

35 U.S.C. 102(b) rejection of claim 31.

Kuroda teaches the operating parameter updates include adjustments to a readout system in the data storage system so that a read signal gain is optimized (col. 7, lines 63-67 in Kuroda).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 2, 9, 11, 12, 15 and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroda; Kazuo et al. (US 5875163 A, hereafter referred to as Kuroda).

35 U.S.C. 103(a) rejection of claims 2, 11, 15 and 27-30.

Kuroda substantially teaches the claimed invention described in claims 1, 13, 22 and 26 (as rejected above). In addition, Kuroda teaches producing a reference status data SC in Figure 4 in response to the analysis step for indicating compliance with the predetermined amplitude condition and the predetermined shape condition, respectively for the analyzed reference field.

However Kuroda does not explicitly teach the specific use of a specific makeup of the reference status data SC.

The Examiner asserts that the reference status data SC is based on phase and amplitude information from Phase Comparing Circuits 14 & 15 and Amplitude Phase Equalizing Circuits 16 and 17 in Figure 4 of Kuroda, hence it would be obvious to convert SC to any other digital form that contains the same information based on phase and amplitude information from Phase Comparing Circuits 14 & 15 and Amplitude Phase Equalizing Circuits 16 and 17.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Kuroda by including use of a specific makeup of the reference status data SC. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of a specific makeup of the reference status data SC would have provided the opportunity to implement an alternative embodiment of the circuit in Figure 4 of Kuroda.

35 U.S.C. 103(a) rejection of claims 9 and 12.

Figure 4 in Kuroda teaches a Pre-Pit Signal Reproducing Circuit 11 and a Sync Pre-Signal Detector 12 for reproducing and analyzing the periodic pre-information reference field of Figure 2 in order to update operating parameters SPD, SPD1 and SPD2 for controlling rotational parameter SC; SC in Figure 4 is a rotational control parameter indicative of possible errors that exist in the periodic pre-information reference field data as it deviates from a reference signal generated by Reference Signal Generator 13 in Figure 4, hence the device taught in Figure 4 of Kuroda is used to analyze errors in retrieved the periodic pre-information reference field data to update operating parameters as a result of the analysis.

Claims 4-8, 18, 21, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroda; Kazuo et al. (US 5875163 A, hereafter referred to as Kuroda) in view of Verboom; Johannes J. et al. (US 5574706 A, hereafter referred to as Nagara).

35 U.S.C. 103(a) rejection of claim 4.

Kuroda substantially teaches the claimed invention described in claim 1 and 3 (as rejected above).

However Kuroda does not explicitly teach the specific use of updates include adjustments to a readout system in the data storage system so that a read signal offset is optimized.

Verboom, in an analogous art, teaches use of updates include adjustments to a readout system in the data storage system so that a read signal offset is optimized (see Abstract, Verboom).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kuroda with the teachings of Verboom by including use of updates include adjustments to a readout system in the data storage system so that a read signal offset is optimized. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of updates include adjustments to a readout system in the data storage system so that a read signal offset is optimized would have provided the opportunity to optimize readout (see Abstract, Verboom).

35 U.S.C. 103(a) rejection of claim 5.

Kuroda teaches the operating parameter updates include adjustments to a readout system in the data storage system so that a read signal gain is optimized (col. 7, lines 63-67 in Kuroda).

35 U.S.C. 103(a) rejection of claim 6.

Sync Pre-Signal Detector 12, Phase Comparing Circuits 14 & 15 and Amplitude Phase Equalizing Circuits 16 and 17 in Figure 4 of Kuroda are a means for wherein the operating parameter updates include adjustments to a synchronization system within the data storage system so that optimum phase synchronization can be achieved

between a readout signal and a storage media synchronization signal (Note: Driver Circuit 19 is a means for synchronizing Spindle Motor 20 by controlling its rotation).

35 U.S.C. 103(a) rejection of claim 7.

Claim 7 is a functional limitation imposing no structural limitation. The teachings in Kuroda and Verboom inherently are capable of optimizing read signal gain by adjusting the readout system to maximize the resolution of the readout window so that the reading of the defined data in the reference field will fill substantially all of the readout window, since the readout window is a function of synchronization, which is taught in the Kuroda and Verboom patents.

35 U.S.C. 103(a) rejection of claim 8.

Claim 8 is a functional limitation imposing no structural limitation. The teachings in Kuroda and Verboom inherently are capable of optimizing read signal gain by adjusting the readout system to maximize the resolution of the readout window so that the reading of the defined data in the reference field will fill substantially all of the readout window, since the readout window is a function of synchronization, which is taught in the Kuroda and Verboom patents.

35 U.S.C. 103(a) rejection of claims 18 and 24.

Kuroda substantially teaches the claimed invention described in claims 13, 14, 22 and 23 (as rejected above).

However Kuroda does not explicitly teach the specific use of the operating parameter being the read signal offset.

Verboom, in an analogous art, teaches the operating parameter is the read signal offset (see Abstract, Verboom).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kuroda with the teachings of Verboom by including the operating parameter being the read signal offset. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that the operating parameter being the read signal offset would have provided the opportunity to optimize readout (see Abstract, Verboom).

35 U.S.C. 103(a) rejection of claim 21.

Kuroda substantially teaches the claimed invention described in claims 13 and 14 (as rejected above).

However Kuroda does not explicitly teach the specific use of the operating parameter is the frequency synchronization of the data storage device read system.

Verboom, in an analogous art, teaches the operating parameter is the frequency synchronization of the data storage device read system (col. 13, lines 12-20, Verboom).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kuroda with the teachings of Verboom by including use of the operating parameter is the frequency synchronization of the data storage device

read system. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of the operating parameter is the frequency synchronization of the data storage device read system would have provided the opportunity to optimize readout (see Abstract, Verboom).

35 U.S.C. 103(a) rejection of claims 25.

Kuroda substantially teaches the claimed invention described in claim 22 (as rejected above).

However Kuroda does not explicitly teach the specific use of a read clock signal being adjusted to an optimum level depending on the results of reading the reference fields.

Verboom, in an analogous art, teaches a read clock signal is adjusted to an optimum level depending on the results of reading the reference fields (col. 12, lines 60-67, Verboom).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kuroda with the teachings of Verboom by including use of a read clock signal being adjusted to an optimum level depending on the results of reading the reference fields. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of a read clock signal being adjusted to an optimum level depending on the results of reading the reference fields would have provided the opportunity to optimize readout (see Abstract, Verboom).

(10) Response to Argument

Arguments with respect to claims 1, 3, 10, 13, 14, 16, 17, 19, 20, 22, 23, 26 and 31:

The Appellant contends, "Most significantly, however, Kuroda does not include any suggestion of reference data interleaved with data to be stored, as specified in" the claimed invention".

The Examiner disagrees and asserts that col. 5, lines 47-58 in Kuroda teaches that pre-information reference data is recorded every sync frame and the title of Figure 2 and Figure 2 of Kuroda teaches that reference pre-information is periodically interleaved onto the disk every 1488T units so that the reference pre-information is interleaved with frame data referred to as recording information in Figure 2, where T is a unit of length. The Examiner asserts that one of ordinary skill in the art at the time the invention was made would have know that information data is stored sync frames. Col. 1, lines 66-67 and col. 2, lines 1-2 in Kuroda teach that pre-pits are formed in the recording media prior to recording pre-information on the recording media "in accordance with pre-information **to be recorded**" [Emphasis Added]. Figure 1 teaches that pre-pits are indistinguishable. Col. 2, lines 65-67 and col. 3, lines 1-3 in Kuroda distinguishes pre-pits into sync pits and information pits generated "in accordance with pre-information **to be recorded**" [Emphasis Added], that is, pre-pits become distinguishable during recording according to Figure 2 when sync pre-information and data pre-information is recorded onto the recording media. Col. 5, lines 59-67 in Kuroda clearly states pre-information **is recorded** every sync frame as part of the sync frame. Col. 6, lines 30-31

explicitly states "data pre-information is **distributed and recorded into a plurality of sync frames**" [Emphasis Added], which clearly implies that the pre-information is part of the sync frames to be recorded. **A sync frame is a data frame**. Col. 6, lines 45-47 in Kuroda explicitly states, referring to the sync signal pre-information in Figure 2 of Kuroda, that "**the sync signal of a length of 14T is recorded at the heads of all of the sync frames**" [Emphasis Added]. Figure 2 demonstrates that pre-information includes information on start frames, even frames and odd frames; frames are a data structure and the position of start frames, even frames and odd frames on the recording media cannot be known prior to recording since the frames only have to align with the pre-pits in Figure 1. Kuroda explicitly teaches interleaving the data with a plurality of reference fields.

The Appellant contends, "The Examiner has apparently concluded that the overall structure of Kuroda, after data is written, forms in an interleaved pattern. However, this pattern is clearly achieved by first creating the physical structure upon the disk surface, which has pre-information formed by prepits. Subsequently, data is simply written to the areas between these pre-pits (i.e., the data storage areas of the disk). This issue of timing is significant as the pre-pit structure clearly provides limitations and shortcomings that the present invention was specifically designed to overcome. This feature is apparently being overlooked by the Examiner".

The Appellant is incorrect. Pre-pits in Figure 1 of Kuroda are formed prior to recording. Col. 6, lines 30-31 of Kuroda explicitly states "data pre-information is **distributed and**

recorded into a plurality of sync frames" [Emphasis Added], which clearly indicates that the pre-information is part of the sync frames to be recorded. Pre-information in Figure 2 of Kuroda including position of start frames, even frames and odd frames on the recording media cannot be known prior to recording and is formed during recording of sync frames.

The Appellant contends, "Further, the Examiner has stated that "pre-pit information" is not "pre-information." Appellant asserts that this is incorrect. All information discussed in Kuroda is created by prepits. These pre-pits can form different types of information, such as sync information, but all are represented by performed pits on the media surface. See, e.g, Kuroda, col. 3, lines 5-6 and 3435 (sync pits are part of the pre pits). Further, Kuroda specifically states that pre-information corresponds to pre-pits formed on the land tracks of the media. Id, col. 5, lines 18-21".

The Appellant is incorrect. Col. 1, lines 66-67 and col. 2, lines 1-2 in Kuroda teach that pre-pits are formed in the recording media prior to recording pre-information on the recording media "in accordance with pre-information **to be recorded**" [Emphasis Added]. Figure 1 teaches that pre-pits are indistinguishable. Col. 2, lines 65-67 and col. 3, lines 1-3 in Kuroda distinguishes pre-pits into sync pits and information pits generated "in accordance with pre-information **to be recorded**" [Emphasis Added], that is, pre-pits become distinguishable during recording according to Figure 2 when sync pre-information and data pre-information is recorded onto the recording media. Furthermore, Figure 6A in Kuroda teaches pre-pit information is 2T units long. The pre-

information in Figure 2 is 14T units long and is recorded information, not pits burnt into the recording media during manufacturing.

Arguments with respect to claims 2, 9, 11, 12, 15 and 27-30:

The Appellant contends, "To establish a prima facie case of obviousness, an examiner must demonstrate that all claim limitations are taught or suggested by the prior art. See MPEP § 2143.03. "All words in a claim must be considered in judging the patentability of [the claim] against the prior art." Id. (citing In re Wilson, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970)). Generally speaking, each of the rejected claims under this section includes limitations related to a reference status byte which is created during the analysis step. More specifically, the status byte will include amplitude and/or shape information, indicating whether or not the reference field contains the expected signals. In the present invention, this status byte allows for the rapid "on the fly" analysis of the reference fields. Simply stated, there is nothing in Kuroda to suggest this concept. With regard to amplitude and phase bits, Kuroda at best teaches phase analysis, however, does not consider signal amplitudes. Consequently, it does not produce any type of amplitude bit indicating an amplitude condition. When combined with other elements of the claims, there is nothing in Kuroda et al. to suggest this claimed invention is obvious. Kuroda simply does not provide sufficient teaching to establish a prima facie case of obviousness".

The Examiner would like to point out that col. 2, lines 48-55 in Kuroda teach that the phase difference detectors 16 and 17 detect the **phase differences** SP1 and SP2 on

the basis of an **amplitude** value of the monotonous increasing signal at the detection timings of the pre-pits. The **phase differences** SP1 and SP2 are status signals derived from amplitude information. Col. 7, lines 65-67 and col. 8, line 1 in Kuroda teach an **amplitude-phase** equalizing circuit 17 in Figure 4 of Kuroda for similarly specifying the output signal SPD2 from the phase comparing circuit 15 so as to have **desired gain** and **phase characteristics**. Gain refers to the amplitude of the signal. SP1 and SP2 comprise **amplitude-phase** information used for feedback for equalizing detected signals. Reference status data SC in Figure 4 is produced from SP1 and SP2 in response to the analysis step; hence SC is also a signal indicating **amplitude-phase** information (note: amplitude and phase determine the shape of a pulse).

However Kuroda does not explicitly teach the specific use of a specific makeup of the reference status data SC.

The Examiner asserts that the reference status data SC is based on phase and amplitude information from Phase Comparing Circuits 14 & 15 and Amplitude Phase Equalizing Circuits 16 and 17 in Figure 4 of Kuroda, hence it would be obvious to convert SC to any other digital form that contains the same information based on phase and amplitude information from Phase Comparing Circuits 14 & 15 and Amplitude Phase Equalizing Circuits 16 and 17.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Kuroda by including use of a specific makeup of the reference status data SC. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of

ordinary skill in the art would have recognized that use of a specific makeup of the reference status data SC would have provided the opportunity to implement an alternative embodiment of the circuit in Figure 4 of Kuroda.

Arguments with respect to claims 4-8, 18, 21, 24 and 25:

The Appellant contends, "The particular claims rejected under the combination of Kuroda and Verboom relate to the specific operational characteristics being monitored and updated by the method of the present invention. More specifically, these claims relate to optimization of the read signal offset, read signal gain, phase synchronization, and resolution of the readout window. For references to be properly combinable, a motivation must exist for the combination. Most often, this requires some reason for one skilled in the art to combine the various references. See, MPEP § 2143.01 at T 9. In this case, the teachings of Kuroda and Verboom do not themselves provide any motivation for their combination. Further, the combination does not result in the claimed invention. Verboom is related to focus offset adjustments utilizing a servo field. While this does relate to the general field of the present invention, it specifically teaches away by discussing the specific use of servo fields contained in a header. More importantly, any references or utilized bits are not interleaved with data."

The Examiner disagrees and asserts that the pre-information data taught in Kuroda is header information for each sync frame in Kuroda. Kuroda uses information derived from pre-information as feedback for servo control (see Spindle Motor Control 20 in Figure 4 of Kuroda); hence the pre-information in Kuroda is substantially servo control

information. Verboom, in an analogous art, teaches use of updates include adjustments to a readout system in the data storage system so that a read signal offset is optimized using of servo fields contained in a header (see Abstract, Verboom).

Conclusion:

The Appellant contends, "In the Final Office Action, the Examiner does, at least partially, respond to the arguments outlined above. The Examiner contends that Kuroda, in defining sync frames with preinformation within a recording sector, has already addressed the idea of interleaving sync data within a data recording sector. But, the Examiner fails to address the differences between Kuroda invention and the current invention. Kuroda writes the sync frame information to the disk at the manufacturer, giving the end user no control over how the sync data is distributed across the media. The current invention eliminates the limitation that the sync data is recorded during manufacture. This permits the end user to configure how frequently sync points are employed, with greater number of sync points allowing for a greater degree of accuracy in identifying read errors and smaller numbers allowing for more data to be read from the media in a shorter time. In effect, synchronization and error checking becomes user configurable and not defined by the media manufacturer".

The Examiner would like to point out that Prior Art sync information is generally frame data created at the time information is to be recorded on a recording media. There are about 200 other Prior Arts that teach sync data as such that could have been used in a rejection of the claims, however the Examiner chose the Kuroda Prior Art and still holds

that the Examiner's rejections are correct. The Examiner has shown that pre-information is part of a sync frame and is not a pre-pit (recall pre-pits are length 2T units and are burnt on to the recording media, whereas pre-information is 14T units in length and is recorded information "**distributed and recorded into a plurality of sync frames**", col. 6, lines 30-31 of Kuroda) so that the Kuroda patent coincides with the way Prior Art sync information is written to recording media and the recording media is thus compatible with Prior Art Recording Media as it should be, if it is to be useful.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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